

MODULE 1: MAPPING THE INNOVATION

Answering the questions in this module provides basic background information on the innovation that includes the problem or opportunity that the innovation addresses, the innovative nature of the project, and the purpose of the innovation. The proposed solution(s) or intervention(s) afforded by the innovation and the specific measures used to measure the effect of such intervention(s) should be described in as much detail as the status of the innovation allows. This module can also help provide the basic information needed for a project fact sheet on the innovation. This module is applicable at any phase of the innovation.

I. Background and Purpose of the Innovation

This section describes basic background on the innovation, including a brief description of how the innovation is different from the traditional way of doing business. The innovation practitioner should also include the impetus for the innovation and its purpose, so that anyone reading about the project will quickly understand its innovative nature. The following questions will help to frame this background information:

1. Why was the innovation developed or proposed?
2. What problem or opportunity does the innovation address?
3. To what extent and does the innovation focus on the following:
 - a. Individual facilities
 - b. Economic sectors or groups of sectors
 - c. Other regulated entities
 - d. Communities
 - e. Tribes
 - f. Other
4. To what extent is the innovation intended to:
 - a. Improve technology
 - b. Streamline Federal/State regulations
 - c. Improve facility operations
 - a. Make more efficient use of Federal/State/local resources
 - b. Improve stakeholder involvement
 - c. Foster organizational change, especially with respect to organizational culture
 - d. Improve environmental management practices (e.g., pollution prevention, environmental stewardship, environmental data, etc.)
 - e. Consider cross-media impacts or multi-media strategies
 - f. Other
5. In what way(s) does the innovation involve new ideas and approaches when compared to the current/existing approach?
6. What programs or policies are impacted by the innovation, and how?

II. Identifying Customers, Partners, and Stakeholders of the Innovation

Answering this set of questions to identify the major participants in the development and implementation of the innovation, and their respective roles and responsibilities. Key individuals or organizations working on the innovation should be identified as partners, i.e., necessary participants in order for the innovation to be implemented. For example, in the case of a facility-specific innovation, a state permit writer may be identified as a key partner. In the case of a community-based innovation, the community leaders and organizers who are actively participating in the innovation should be identified. The roles and responsibilities of Federal and State regulators should be described, key contact personnel identified, and the process for coordination and collaboration documented.

The innovator should also make an attempt to describe the customers of the innovation. For example, is the innovation going to benefit the government and regulated entities? If the answer to both questions is “yes”, then the innovator should further specify parties in the government that may benefit (e.g., inspectors, permit writers), the level of government at which the innovation is aimed (e.g., the innovation is intended to benefit state permit writers and inspectors), and the types of facilities that may benefit (e.g., is the innovation intended to help a sector or an individual facility?). Specificity in identifying customers of the innovation will allow the innovator to target resources, collect data and communicate results, and craft public involvement strategies. Key stakeholders in the innovation are the individuals who may care about the innovation and its results, but may not be active in the everyday implementation and activities of the innovation. For example, for an EPA innovation, key stakeholders may be a nearby community, EPA senior managers, and Congress. For a facility innovation, senior corporate managers and shareholders may be key stakeholders to engage. These stakeholders are important to keep in mind when communicating the results of the innovation or in designing the innovation.

7. Who are the key regulated entities?
8. Who are the key partners?
9. Who are the key customers?
10. Who are the key stakeholders?
11. Who has primary responsibility for designing, overseeing, and implementing or using the innovative approach or tool?
12. Does the innovation involve delegation of regulatory responsibilities from EPA to a Tribe or State or from the State to local government? (Y/N). If yes, how?

III. Tools that Assist Innovation

The tools that assist innovation may have significant influence on the progress and advancement of the innovation. This section identifies and describes tools that have been or will be used during development and implementation of the innovation. These tools may include but are not limited to: environmental management systems, economic incentives, regulatory reform, smart permitting, pollution prevention, performance-based compliance assistance, information management and access, and risk-based standards.

13. What innovative tools are employed (e.g., economic incentives, EMSs, regulatory reform, smart permitting, pollution prevention, performance-based compliance assistance, information management and access, risk-based cleanup standards)? Please describe.

IV. Drivers for Innovation

This question is asking the innovator to identify the primary motivating factors that are driving the innovation forward. There may be many drivers for innovation – including the need for regulatory flexibility to reduce uncertainty within the permitting process, rapid economic growth, technological/scientific development, increased environmental awareness, population growth, urbanization, and international commerce. Drivers that promote innovation should be identified, and if possible, ranked according to their significance. For example, the potential opportunity costs of delays from air permitting can be high, creating a demand among companies for permit flexibility to stay competitive within a global market. By identifying the primary drivers for innovation, the practitioner may be better equipped to identify potential adopters of the innovation in the event of broad-scale application.

14. Describe all drivers for innovation that pertain to your innovation and explain how such drivers promote innovation (e.g., law or policy that promotes the use of the innovation).

V. Barriers to Innovation

From the point of view of an innovator, barriers to innovation may include: technical challenges consisting of inadequate tools or limited economic alternatives; scientific challenges consisting of the absence of key data or inadequate scientific understanding; institutional challenges such as a resistance to change, a jurisdictional challenge, or lack of an authorizing environment; or legal challenges arising from laws, regulations, or policies that impede innovation. Different barriers require different strategies to create a pathway for the innovation. Barriers, and the strategies for overcoming these challenges, should be identified within this module. Innovation practitioners should identify and address barriers, or perceived barriers, early in the innovation to enhance the innovation's chances of success.

15. Describe all challenges to your innovation and explain how such challenges present barriers.

VI. Describing the Logic of the Innovation

Many innovative programs and projects often run into trouble because they lack a well-articulated road map describing the logic of the program or project. Having gathered information on the purpose of the innovation, the problem or opportunity the innovation addresses, as well as the customers, drivers for and barriers to the innovation, as a next step in the process, innovation practitioners may want to develop a logic model that synthesizes the key activities intended to achieve the goals of the innovation into a picture, which links inputs to activities and to expected outputs and outcomes. A logic model is a diagram and text that describes the logical (causal) relationships among program elements and the problem to be solved, thus defining measurements of success. This section of the user's guide leads the innovator through an exercise to map out the logic behind the innovation. The innovator is provided with a template in Module 1 to enter in a completed logic module.

Using a logic model helps determine the degree to which an innovation's activities affect the expected outcomes and can help plan appropriate measures to achieve the outcomes. Logic models can be created in many different ways. For an ongoing innovation, the starting point can be the elements of the innovation, which are then organized into their logical flow. For a new innovation that is in the planning phase, the starting point can be the mission and long-term goals of the effort. The intermediate objectives that lead to those long-term goals are then added to the model, followed by the short-term outcomes that will result from those intermediate objectives. The key to the logic model is that it tells the story of why the innovation is important, how it will make a difference, and the expected outcomes as a result of the innovation. An example of a logic model is provided in Exhibit 1a on Page 13.

VII. Benefits of Developing a Logic Model

Design Phase

The logic model can help communicate the performance story of the innovation and can help build a common understanding of the purpose, goal, and anticipated outcomes among staff and stakeholders. By answering questions relating to what the innovation is trying to achieve, with what resources, through what customers, the program niche, and the expected results within a given context, the logic model can help identify potential pitfalls in the design of the innovation. The logic model identifies potential outcomes that may be difficult to achieve based on the design of the innovation or innovative program. For example, if the innovation is supposed to result in a behavior change due to adoption of the innovation and there is no way of knowing if the intended practitioner of the innovation does or does not adopt the innovation, then it will be difficult to measure the success of the innovation.

Implementation Phase

The logic model can also be used to further design and develop innovation by helping to identify gaps in the suite of activities and prioritize programs and resources toward achieving desired end outcomes and goals. By being explicit about the program theory and assumptions behind an innovation, various stakeholders and policy-makers can better understand the innovation.

Once completed, the logic model can help the practitioner “manage for results”. By arraying information in a logical sequence the innovation practitioner can identify and choose appropriate performance measures. Specifically, the identification of anticipated outcomes will also be useful in identifying and developing performance measures and indicators that can be used to determine if the innovation is achieving the stated goals, objectives, and results. The development of performance measures and the collection of data can facilitate *program improvement* and allow the practitioner to communicate the value of the innovation and influence new program development. As a planning and evaluation tool, the logic model can help identify which areas of a program to focus an evaluation.

End of the Innovation Phase

If a logic model of the program was not completed during the design or implementation phases, producing one at the conclusion of an innovation and at the outset of an evaluation can be an extremely valuable process. A logic model at this stage will help describe the operation of the program to stakeholders and evaluators, identify potential questions to be asked through an evaluation, and highlight the key areas of program design and theory for further analysis. If a logic model was created during an earlier phase, returning to it at this point and comparing how the innovation actually functioned to the earlier logic model can provide a starting point for areas to focus on during an evaluation.

Formal Evaluation

The logic model can help identify the right evaluation questions to ask based on the major components of the innovation. The evaluation focuses on the connection points between the elements of the program. This means that the practitioner should focus on the “how and why” between the phases of the program. For example, if the innovation is supposed to change the behavior of a target group of individuals in order to get improved compliance—some evaluation questions to ask are: 1) to what extent has compliance improved, 2) what is the innovation doing to change people’s behaviors, and 3) what else could be causing the change in behavior?

VII. Steps in the Logic Model Process

The logic model provides a basis for identifying the major facets or components of the innovation being evaluated. This is less difficult if the practitioner determines the major functions of the innovation and then aggregates similar functions into program components. After each major function area or component is identified, it should be described in terms of the resources (inputs) needed to conduct the activities, (e.g., staff, time, finances, information, equipment, facilities, etc.) and activities (processes) that will be accomplished to achieve the objectives, outputs, and outcomes. The following five steps can help in the development of a logic model of the innovation. Please note that not all of the steps mentioned below have to be formalized. Time and resources may limit the extent to which the innovator implements the logic model process, but at a minimum, people involved with the innovation should work on a logic model.

STEP 1: Establish a Stakeholder Workgroup and Collect Documents

An important first step in developing the logic model is to establish a workgroup comprised of individuals/stakeholders that are knowledgeable about the innovation. A stakeholder workgroup can

provide a wide breadth of information and different perspectives and knowledge about the innovation that might otherwise be missed if developed by a single individual. Once convened, the workgroup should review any available documentation about the innovation that will provide information on goals and objectives, costs, anticipated outcomes, etc. Sources of program documentation may include, strategic and operational plans, budget requests, current metrics, past evaluations, evaluations of similar innovations or programs, extant theories (e.g., economic, behavioral sciences), and interviews. This stage does not have to be overly formal nor does it have to be a large workgroup. The main goal is to make sure that major components of the innovation are accounted for and that the logic model will provide a close to accurate roadmap of the innovation and its intended outcomes.

STEP 2: Define the Problem and Context for the Innovation

Clearly defining the problem the innovation is designed to address and understanding the context in which the innovation is designed to operate will help the practitioner understand the conditions that may influence the success or failure of the innovation. Using the answers to the questions in Module 1, begin to develop a problem or issue statement that describes the problem(s) the innovation is attempting to solve or the issue(s) the innovation will address. As part of this step, specify the needs and/or assets that led to the design of the innovation which addresses the problem. If desired, state and/or identify expected results or vision of the future (including those results out of the control or not in the direct influence of the innovation) by describing the expected near and long-term outcomes. Next, list the possible factors that will influence change in the affected community and list general successful strategies or “best practices” that have helped achieve the kinds of results intended by the innovation. Lastly, state the assumptions behind how and why the change strategies will work.

STEP 3: Define Elements of the Logic in a Table

Using the answers developed to the questions in Module 1, use the blank table included in Module 1 to: 1) describe the resources or influential factors available to support the innovation activities; 2) describe each of the activities conducted to support the innovation; 3) identify (for each activity) what outputs (service delivery/implementation targets) aimed to produce/provide; 4) describe the customer(s) the innovation is intended to reach through the activities and the partner(s) needed to implement the innovation; and 5) identify the short-term, intermediate and long-term outcomes the innovation is expected to achieve for each. Exhibit 1a below provides an example of a completed logic model table. Just as a reminder: **Short-term outcomes** are described as changes to attitudes, knowledge and/or skills of the target customers. **Intermediate outcomes** are described as changes in behaviors that result from the acquisition of knowledge or shift in attitude that flows from the short-term outcomes. **Long-term outcomes** are outcomes that result in a change in condition—e.g., the air is cleaner.



Tip:
Understand the
ABC's of your
innovation's
outcomes

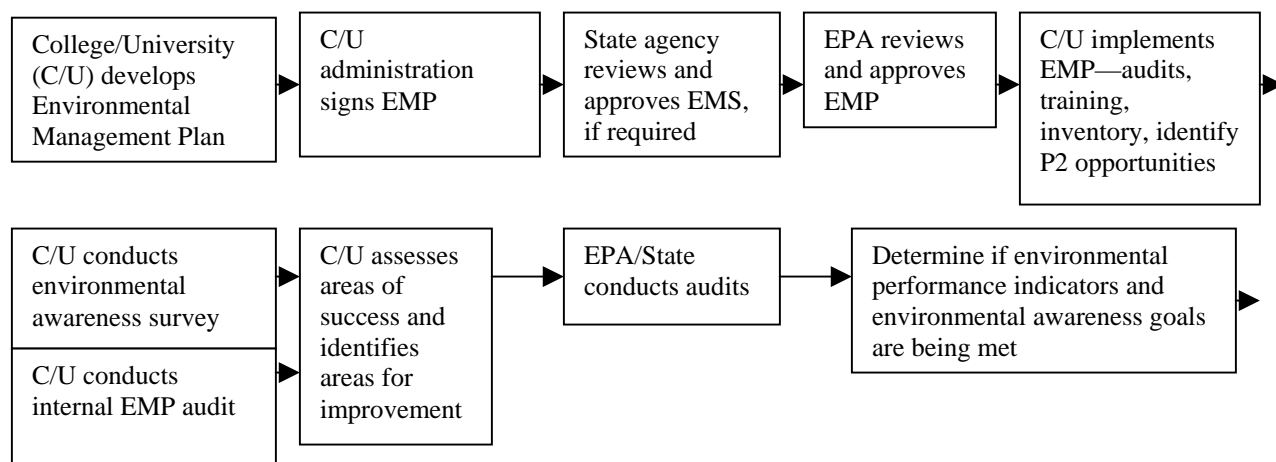
Exhibit 1a—Abridged Logic Model of the New England Labs Project XL

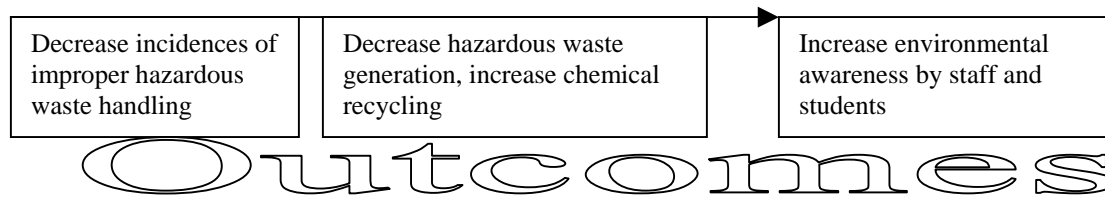
Resources (what you invest)	Activities/ Programs (what you do in the program)	Outputs (what you produce)	Customers (who you reach and who you work with)	Short-term outcomes (what are the short term results you are looking for?—changes in Attitude, knowledge, skills)	Intermediate outcomes (what are the intermediate results you are looking for?—changes in Behavior)	Long-term environmental outcomes (what is the ultimate impact of the innovation on behavior, human health, environment—changes in Condition?)
Examples: Staff Budget Technology	Examples: Develop Environmental Management Plan Auditing Training Surveys Reporting	Examples: Inspection Audits Trainees	Examples: Customers—staff and students; Partners—Administration and department chairs	Example: Increase in knowledge of regulations Change in attitude to recycling	Example: Decrease in improper waste handling and management Increase in recycling Decrease in waste generation	Example: High environmental awareness among staff and students and implementation of pollution prevention activities

STEP 4: Develop a Diagram of Logical Relationships and a Narrative

As the model is developed, remember that innovation components are often related. The logic model should help graphically depict and explain the logical relationships that exist between inputs, outputs, and outcomes. It graphically illustrates what must occur in order for the innovation to accomplish its goals. While the boxes represent an activity, the arrows indicate the connection between the activities. As the model is developed, limit the words in the diagram, but attach more detail in separate charts or a narrative that describes the information underlying the assumptions. Keep in mind there are many different forms of logic model diagrams. The innovation practitioner may want to have more than one model that depicts different levels of detail, different groups of activities, different levels at which performance is measured, different stakeholder views, or different theories.

Exhibit 1b—Abridged Logic Model Part 2





STEP 5: Verify the Logic with Stakeholders

As a final step, be sure to verify the logic model to ensure that all aspects of the innovation have been captured and depicted. The original stakeholder group can review the logic model or an even broader group of stakeholders can be employed for this. As the model is reviewed, consider asking “How-Why” questions. For example, start with a specific outcome and ask, “How is the outcome expected to be achieved?” Start at Activities and ask, “Why is this activity important?” Also consider asking “If-Then” questions. For example, start at Activities and move along to Outcomes and ask, “If this activity happens, then what outcome is expected?”